

REMARKS

Reconsideration and allowance in view of the foregoing amendments and the following remarks is respectfully requested.

Interview Summary

In a telephonic interview conducted on July 8, 2009, various issues were discussed. The Examiner took the position that the claims were inappropriately formatted for method claims and need to clearly recite steps and to be set forth in a clear and definite language. Further due to the indefiniteness of the claims it would be more than likely necessary to perform a further search should the claims be clarified in a supplemental amendment. No agreement as to patentability was reached.

Claim amendments/Status

In this supplemental amendment, the claims have been revised and carefully reviewed in an effort to render them both clear and distinct. Support for the amendments is found in the originally filed specification - see page 12, last full paragraph. Although the term "virtual" is not found in the specification *per se*, it is self evident, when the disclosure is taken as a whole, that the arbitrary addition of an obstacle which does not really exist is best described as virtual.

Claims 1-14 remain pending in the application.

Rejections under 35 USC § 101

The rejection of claims 1-2, 6-7, 9-14 under 35 USC § 101 because the claimed invention is directed to non-statutory subject matter, is to the degree it is still pertinent to the claims as amended, respectfully traversed.

Claim 1 has been amended in order to make the subject matter for which patent protection is sought clearer. The last step calls for the plotting of a course based on the steps which precede it. This is deemed to set forth a transformation which renders the claimed subject matter statutory. The Applicant further submits the objection seems unjustified in light of the claims allowed in US 7,113,617 issued to Hewlet-Packard. Reconsideration is respectfully requested.

Rejections under 35 USC § 112

- 1) The rejection of claims 1-2, 6-7 and 9-14 under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement; and
- 2) The rejection of claims 1-2, 6-7 and 9-14 under 35 USC § 112, second paragraph as being indefinite; are both traversed.

The claims have been revised to obviate the shortcomings perceived in this rejection.

Rejection under 35 USC § 102

The rejection of claim 1 is 35 U.S.C. 102(b) as being anticipated by Michaelson et al. (IDS references – US 6,469,664), is respectfully traversed.

Claim 1, as amended, is directed to a method for estimating, by a terrain navigational system of a moving vehicle with limited maneuverability, curvilinear distances to be traversed by the vehicle from its instantaneous position to reach points of a travel region containing potential obstacles to be circumvented by said vehicle in order to establish a distance map covering the travel region wherein the curvilinear distance estimations of the distance map are obtained by means of a distance transform, the method comprising the steps of: providing a virtual, impassible obstacle in addition to detected real impassable obstacles; arranging the virtual, impassible obstacle in a predetermined spatial position with respect to the vehicle; moving the virtual, impassible obstacle in a predetermined relationship respect to the vehicle; cataloging distance map cells which are associated with the virtual, impassible obstacle that are inaccessible to the vehicle owing to its maneuverability limits; forcing the distance transform to put aside, in its search for the lengths of the shortest paths, the paths that are out of range of the vehicle owing to its limited maneuverability; and plotting a course which prohibits unrealistic vehicle turns based on the paths that are out of range of the vehicle owing to its limited maneuverability.

It is submitted that the cited art fails to disclose or suggest these steps.

Michaelson et al. (hereinafter Michaelson) disclose a navigational system for surface vessels providing warning of impending grounding occurrences. This navigational system comprises a display generator to indicate whether the distance between the marine vessel and the terrain is less than the boundaries defined by caution and warning envelopes. It predicts an

anticipate track or path for the vessel based on mathematical models of the vessel's behavior (col. 8, line 33 to col. 14, line 17) or on international standards for turning and stopping based on ship length (col. 14, lines 18 to 24), uses the vessel position and dynamics (anticipated track) to size the caution and warning envelopes linked to the vessel and outputs alert signal when caution or warning envelop intersects a terrain feature or an obstacle memorized in a terrain database.

Michaelson's navigational system uses a terrain database to build a classical coast map that is the same for all kinds of vessel. As it anticipates the track of the vessel with mathematical models of the vessel behavior, it needs not build a distance map fitted to the mobility of a particular vessel, that is to say giving for each point of a travel region, the curvilinear distance to go through for the particular vessel having to circumvent potential obstacles. Therefore, Michaelson neither describes nor suggests the use of a distance map and of a distance transform by propagation to estimate curvilinear distance needed to build a distance map. In his navigational system Michaelson has no reason to consider any additional obstacle linked to the vessel.

The rejection is traversed for at least the above noted reasons.

Rejection under 35 USC § 103

The rejections of:

- 1) claims 2 and 10 under 35 USC §103(a) as being unpatentable over Michaelson.; and
- 2) claims 6-7 and 11-14 under 35 USC § 103(a) as being unpatentable over Michaelson and further in view of Meng et al. (US patent 4,862,373); are respectfully traversed.

As mentioned above, Michaelson does not describe, suggest nor consider a purposely introduced virtual obstacle in connection with the vessel. Accordingly, the teachings of this reference fail to make obvious, the claimed subject matter to one ordinary skill in the art.

Meng et al. do not teach or suggest a contour for a virtual obstacle associated with an aircraft comprising two circles passing through the position of the aircraft as mentioned in amended claim 6 or comprising two cycloid lobes as called for in amended claim 7. The Meng et al. reference describes relative to the figure 12, a method to determine a path at equal distance from two obstacles having, for the demonstration, the shape of circles. In this method

the boundaries of the two obstacles (circles) are incremented outward until they meet each other.

As Meng et al. do not describe or suggest any virtual obstacle taking into account the maneuverability limits of an aircraft, their teaching could not render obvious, to one ordinary skill in the art at the time the invention, to withdraw a free angular sector from the additional obstacle as called for in amended claims 11, 12 13 and 14.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance and a Notice to that effect is earnestly solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,
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